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ABSTRACT

The Minnesota Board of Teaching adopted the Pre-Professional Skills Tests (PPST) for initial teacher licensure as required by the State Legislature. A 1987 validation study set qualifying scores for reading, mathematics, and writing. This report evaluates the 4-year administration of the PPST, using data from 1987-91 that were analyzed according to specific variables of gender, in-state or out-of-state preparation, educational level, and racial/ethnic group. Of the 26,861 examinees who took 1 or more PPST tests in 1987-91, most were female. About 85 percent were enrolled or had completed preparation at a Minnesota college or university, and about 72 percent of the examinees were in undergraduate programs during their first attempt at the PPST. Only 2.2 percent of the examinees were minority group members. More Minnesota examinees than projected passed the reading, mathematics, and writing tests on the first attempt. Non-Minnesota examinees had a higher success rate than projected on all three tests. More females passed the test on the first attempt. Minorities were less successful than majority examinees on the initial attempt. Minnesota institutions of higher learning that offer teacher preparation continue to provide candidates who fail the tests with access to opportunities to enhance their skills. Statistical differences among subgroups, although significant, are generally small. An appendix contains 45 tables of study results. (SLD)

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REPORT ON MINNESOTA'S FOUR-YEAR ADMINISTRATION OF THE PRE-PROFESSIONAL SKILLS TESTS 1987-91

MINNESOTA BOARD OF TEACHING

DECEMBER 18, 1992

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ABSTRACT

Test Adoption:

In accordance with Minn. Stat. §125.05, subd. 1, and Minn. Stat. §125.03, subd. 5, the 1985 Minnesota Legislature authorized the Minnesota Board of Teaching to adopt teacher examinations in reading, mathematics, and writing as a requirement for initial teacher licensure. The Board adopted the Pre-Professional Skills Tests (PPST) developed by the Educational Testing Service. This process included the validation, field testing, and administration of a state-wide testing program.

In 1987, Educational Testing Service conducted a validation study that included 1) the review of the PPST questions by representative Minnesota educators to determine the job-relatedness and content appropriateness of the test for use in Minnesota, and 2) the field testing of the PPST at four Minnesota colleges. Based on the findings of the validity study, the Minnesota Board of Teaching set qualifying scores at 173 for reading, 169 for mathematics, and 172 for writing.

The Minnesota validation panel consisted of 30 Minnesota educators. Panelist membership consisted of teacher educators, teachers, principals, and counselors in different school districts across the state. The panelists reflected varied levels of academic achievement, varied lengths of teaching experiences, and varied age groups and ethnic backgrounds.

The Board of Teaching 1) established rules for implementation of policies regarding teacher examinations, requiring that effective April 4, 1988, all applicants for initial teaching licenses must achieve a minimum passing score on each of the examinations before being issued an initial Minnesota teaching license, and 2) required the implementation of an annual evaluation plan for teacher examinations. Rules were later established, effective April 8, 1991, requiring applicants for secondary vocational licensure to meet the examination standard.

Purpose of Study:

This study provides the evaluation of the four-year administration of the Pre-Professional Skills Tests. It provides data and information on the 1987-91 experience in accordance with the Board of Teaching Evaluation Plan requiring 1) analysis of annual data by gender, in-state/out-of-state preparation, educational level, racial/ethnic group, and number of retakes, and 2) feedback from colleges and universities regarding the type of remedial opportunities available to students and the appropriateness of test dates and sites.

Methodology:

In accordance with the Minnesota Board of Teaching Evaluation Plan, Educational Testing Service provided data tapes on the 1987-91 examinations. With assistance from the Minnesota Department of Education, the data were analyzed according to the specified variables (gender, in-state/out-of-state preparation, educational level, and racial/ethnic group).

Analysis of the data was, for the most part, descriptive. Frequency distributions of the testing groups and subgroups were obtained. In addition, further analysis of the data was done on a limited basis. Analysis beyond descriptive statistics included t-tests, analysis of variance, and chi-square procedures. All three of these analytical procedures provided insights into the question of whether differences between various groups are simply chance differences, or real differences, such as better performance on a test by one group than another (e.g., males vs. females).

Findings:

Of the 26,861 examinees who took one or more PPST tests during the 1987-91 period, and who at the time of testing coded their gender, in-state/out-of-state preparation, educational level, and/or racial/ethnic group, the majority were female (74.0 percent). Of the total, 84.8. percent of the examinees were either enrolled in or had completed their undergraduate preparation at a Minnesota college or university, and 72.3

percent of the examinees were matriculating in undergraduate programs at the time of their first attempting the PPST. The majority (5[illegible] percent) of the examinees were in their junior or senior year. Only 2.2 percent of the examinees were minority, either Asian/Pacific, Black, Hispanic, or Native American.

Based on the results from the 1986 Minnesota field testing study, and the projected percentages for non-qualifying examinees, data indicate that more Minnesota examinees than projected passed the reading, mathematics, and writing tests on their first attempt. Non-Minnesota examinees continue to demonstrate a higher success rate than projected on all three tests.

Overall, a higher proportional percentage of the female examinees passed the writing test on their first attempt compared to male examinees. A higher proportional percentage of male examinees passed the mathematics test than did female examinees. Performance on the reading test was nearly the same for male and female examinees. Minority examinees experienced less success than did majority examinees on the initial attempt at the reading, mathematics, and [illegible]ting tests. The percentage of minorities failing the reading and writing tests and not retaking the tests was higher than the percentage of majority examinees not retaking those tests.

Post-senior examinees demonstrated a higher level of performance on the reading, mathematics and writing tests of the PPST than did seniors and pre-seniors. And seniors overall performed higher on all three tests than did pre-senior examinees.

Minority examinees (Asian/Pacific, Black, Hispanic, Native American) demonstrated lower mean scores than did non-minority examinees on the reading, mathematics, and writing tests.

The 26 Minnesota institutions of higher education offering teacher preparation programs continue to provide candidates who failed the examinations access to opportunities to enhance their skills. These services generally were provided through on-campus learning centers, academic skills centers, skill laboratories, etc. Overall, Min-

nesota institutions indicated that the 1987-91 testing schedules met the needs of their candidates. Institutions recommend that continued attention be given to avoiding setting test dates at times when other examinations are occurring on campus and during semester/term breaks.

Limitation:

Although statistical differences were observed between various subgroups of the 1987-91 examinees, reservation is advised in interpretation. It should be noted that differences, although statistically significant, continue to be small. Therefore, it is strongly suggested that judgments be made conservatively and on a broader information base than this study alone provides.

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BACKGROUND

On April 24, 1987, the Minnesota Board of Teaching adopted the Pre-Professional Skills Tests (PPST) developed by Educational Testing Service (ETS) as the examinations of reading, mathematics, and writing required for initial teacher licensure by Minn. Stat. §125.05, subd. 1, and Minn. Stat. §125.03, subd.5. Minimum qualifying scores were set at 173 for reading, 169 for mathematics, and 172 for writing.

Adopting Teacher Licensure Examinations

During the 1985 special session of the Minnesota Legislature, the Minnesota Board of Teaching was authorized to require persons applying for initial teaching licenses, or for additional fields of licensure, on April 4, 1988, and thereafter to successfully complete an examination of academic knowledge in each field, and for persons applying for initial licensure, an examination of skills in reading, mathematics, and writing.[1]

On February 17, 1986, the Minnesota Board of Teaching released a request for proposals (RFP), seeking bidders for the development, validation, field testing and administration of a state-wide testing program for the issuance of teaching licenses. The directive in the RFP stated:

> **The comprehensive program will include a separate examination for each skill area and a separate academic content knowledge examination for each licensure area....The examination shall be designed to assure that no person is discriminated against on the basis of race, color, national origin, or other factors unrelated to the person's ability to perform as a licensed teacher.**

The goal of the RFP was to produce a state-wide examination system to:

1) Ensure that candidates for licensure demonstrate proficiency in each described skill area of reading, writing, and mathematics.

2) Identify specific areas of performance for individual diagnosis and remediation.

3) Provide test performance data to assist Minnesota institutions of higher education in modifying and strengthening their programs for preparing teachers for licensure in Minnesota.

[1]The requirement for successful completion of an examination of academic knowledge was repealed during the 1987 legislative session.

Setting Minnesota Qualifying Scores

In the procedures to establish qualifying scores, Educational Testing Service provided comparable data on two primary reference groups. Both populations represent first-time examinees who were tested under standard conditions and fell into one of two populations.

PRIMARY REFERENCE GROUPS	
Population 1	**Population 2**
Graduating seniors (376) from four Minnesota colleges/universities with teacher education programs (Concordia College-Moorhead, Mankato State University, St. Cloud State University, and the University of Minnesota-Twin Cities) who participated in the PPST field testing in October 1986.	College seniors and graduates (35,751) enrolled in 284 institutions and agencies in 38 states from across the nation who were tested from February 1983 through July 1986.

The study scores from these two primary reference groups provided the data base by which the PPST scores could be interpreted in relation to the performance of appropriate reference groups.

The establishment of state-wide minimum passing scores on the PPST required for Minnesota licensure was completed and reported in the Minnesota Validity/Standard Setting Study: Pre-Professional Skills Tests (PPST) conducted in 1987 by ETS. After the systematic review of summarized standard setting study data, which represented the professional judgments of Minnesota educators from representative educational institutions, at elementary through college/university levels, a decision was made by the Minnesota Board of Teaching to set the qualifying scores at the present standards (Reading 173, Mathematics 169, Writing 172). In establishing the Minnesota qualifying scores on the PPST, the Minnesota Board of Teaching set the cut score -1 standard error of

measurement (SEM). Setting the minimum passing scores lower than the study scores by -1 SEM reduced the probability that examinees with true scores at or above the cut scores would not pass the tests, if on a particular occasion, their scores were lower than their true scores.

Minimum cut scores have not changed during the four-year testing period.

Evaluation Plan for Teacher Examinations

On May 8, 1987, the Minnesota Board of Teaching required the implementation of the following evaluation plan:

1) Educational Testing Service will provide data tapes on an annual basis with information needed to determine the number of persons achieving minimum passing scores for each skills area examination. This data tape will provide the capability to analyze the information by gender, in-state/out-of-state preparation, educational level, race/ethnicity, and number of retakes.

2) Assistance in analysis of the data will be provided by the Assessment Section of the Minnesota Department of Education.

3) Colleges and universities will be requested to provide feedback regarding the type of remedial opportunities available to students and the appropriateness of test dates and sites.

4) A summary report of the information will be provided to the Minnesota Board of Teaching on an annual basis.

METHODOLOGY

Purpose of Evaluation

This study provides the evaluation of the four-year administration of the Pre-Professional Skills Tests. It provides data and information on the 1987-91 experience in accordance with the Board of Teaching Evaluation Plan requiring 1) analysis of data by gender, in-state/out-of-state preparation, educational level, race/ethnicity, and number of retakes, and 2) feedback from Minnesota colleges and universities regarding the type of remedial opportunities available to students and the appropriateness of test dates and sites.

Population

The population is defined as all individuals who aspired/sought to meet the requirements for initial standard teaching licensure in Minnesota after April 4, 1988. The group involved in this study is a sample of that population. Thus, the population in this study is drawn from the four-year testing period 1987-91.

Procedures

In accordance with the Minnesota Board of Teaching Evaluation Plan adopted in 1987, and reaffirmed in 1990, Educational Testing Service provided 1987-91 examinee data tapes. With assistance from the assessment staff of the Minnesota Department of Education, the data were analyzed according to the specified variables (gender, in-state/out-of-state preparation, educational level, and race/ethnicity).

Analysis

Analysis of the data was, for the most part, descriptive. Frequency distributions of the testing groups and subgroups were obtained. In addition, further analysis of the data was done on a limited basis. Analysis beyond descriptive statistics included t-tests, analysis of variance, and chi-square procedures. The probability levels were set at the 0.05 level. All three of these analytical procedures provided insights into the question of whether differences between various groups are simply chance differences, or real differences, such as better performance on a test by one group than another (e.g., males vs. females).

Limitations

1. Although statistical differences were observed between various subgroups over the four-year testing period, reservation is advised in interpretation. It should be noted that differences, although statistically significant, were not large. Therefore, it is strongly suggested that judgments be made conservatively and on a broader information base than this study provides.

2. All data reported are specifically descriptive of the 1987-91 examinee population, and findings are not generalizable to other populations.

3. The valid cases from which findings are reported are limited by the completeness and accuracy of the examinees' having provided, at the time of testing, the correct code identifying gender, in-state/out-of-state preparation, educational level, and race/ethnicity. In addition, the number of reported valid cases reflects that not all examinees took all three PPST skills tests.

Additional References

Final Report: Minnesota Validity/Standard Setting Study - Pre-Professional Skills Tests. *Educational Testing Service*, Evanston, Illinois, January 1987.

ETS Test Sensitivity Review Process, *Educational Testing Service*, Princeton, New Jersey, 1989.

Report of Minnesota's First-Year Administration of the Pre-Professional Skills Tests 1987-88, *Minnesota Board of Teaching*, April 20, 1989.

Report of Minnesota's Two-Year Administration of the Pre-Professional Skills Tests 1987-89, *Minnesota Board of Teaching*, October 17, 1990.

Report of Minnesota's Three-Year Administration of the Pre-Professional Skills Tests 1987-90, *Minnesota Board of Teaching*, August 16, 1991.

Pre-Professional Skills Tests Score Interpretation Guide, *Educational Testing Service*. 1989.

RESULTS

Report on All 1987-91 Examinees

Following is a performance summary of the 26,861 examinees who took the three skills tests of the PPST during the four year period of state-wide testing in Minnesota. The Minnesota Board of Teaching required in its evaluation plan that data on all examinees be analyzed by gender, in-state/out-of-state preparation, educational level, and racial/ethnic group.

Who in 1987-91 took the three skills tests of the PPST as a requirement for initial Minnesota teaching licensure?

Table 1 provides a summary by gender, in-state/out-of-state preparation, educational level, and racial/ethnic group for the 26,861 examinees who attempted the three tests of the Pre-Professional Skills Tests during 1987-91 administration period. As indicated, 74.7 percent of the 26,606 valid cases were females. Of the 26,295 examinees who indicated their institution, 84.8 percent either were enrolled in or had completed their undergraduate teacher education program at a Minnesota college or university.

When during their educational career did 1987-91 examinees initially attempt the PPST?

Table 1 further shows the educational level for all 1987-91 examinees at the time of examinees' first attempt at the three tests of the PPST. At the time of their first attempt, 72.3 percent of the 26,830 examinees entering codes for educational level were matriculating at the undergraduate level. Juniors and seniors made up 53.4 percent of the examinees, while seniors alone constituted 29.1 percent of the examinees. Few examinees took the PPST during either their freshman year (1.9 percent) or sophomore year (17.0 percent).

What percentage of the 1987-91 examinees indicated being a member of a minority group (Asian/Pacific, Black, Hispanic, Native American)?

Only 2.2 percent (591) of the 26,559 examinees entered codes indicating being a member of one of four minority groups. Asian/Pacific examinees constituted the largest of the four minority groups, followed by Black examinees, Native American examinees, and Hispanic examinees.

How did the 1987-91 examinees perform on the initial attempt at the three tests of the PPST?

The Minnesota Board of Teaching established minimum qualifying scores for the three tests of the PPST at 173 for reading, 169 for mathematics, and 172 for writing. These study scores were set at -1 SEM below the original study scores. The 1987 Validity Study conducted by Educational Testing Service suggested that if the study scores were adjusted to take into account the SEM (standard error of measurement), then it may be expected that the percent of Minnesota graduating seniors who score -1 SEM below the study score would be approximately 13.6 percent for reading, 7.4 percent for mathematics, and 6.0 percent for writing. These percentages were based on the results from the 1986 Minnesota field testing of the PPST.

Setting the study score -1 SEM below the study scores projected that the percent of Non-Minnesota seniors and graduates who scored -1 SEM below the study score would be approximately 22.0 percent in reading, 13.0 percent in mathematics, and 15.0 percent in writing. These percentages were based on ETS experience with the PPST in 38 states between 1983 and 1986.

Table 2 presents the cumulative percentages for 26,861 first-time attempting examinees who scored below selected PPST scaled scores on the reading, mathematics, and writing tests. Data in Table 2 indicate that overall, fewer examinees than projected failed to obtained a qualifying score on each of the three tests on their first attempt.

In addition, for all examinees considering applying for initial Minnesota licensure (26,861) the mean scores on the reading test (179.9), mathematics test (180.6), and writing test (176.6) were slightly higher than the national reading mean score (178.3), mathematics mean score (178.0), and writing mean score (175.8) reported by Educational Testing Service for July 1986 to June 1989, on 161,941 examinees.

Table 3 presents a comparison of the projected non-qualifying percentages on the three tests according to three selected scaled scores. The Minnesota College Senior Field Test population provided the basis for determining how many Minnesota examinees might be expected not to qualify on each of the three skills tests. Comparing the projected non-qualifying percentages of Minnesota examinees to their reference group of Minnesota Seniors Field Test 1986 shows that fewer Minnesota examinees than projected failed to obtain a passing score on the reading, mathematics, and writing tests on their first attempt; that is, more Minnesota examinees than expected passed all three tests on their first attempt.

Examination of the projected non-qualifying percentages of Non-Minnesota examinees to their reference group of Out-of-State Examinees 1983-86 shows that fewer Non-Minnesota examinees than projected failed to obtain a passing score on all three skills tests.

Report on Gender, In-state/Out-of-state Preparation, Educational Level, and Racial/Ethnic Group

The following section reports the data on first-attempt examinees who coded gender, place of preparation (in-state/out-of-state), educational level, and racial/ethnic group at the time of testing.

Of the 1987-91 examinees (26,606) who entered valid codes for specific variables, 74.7 percent were female, 25.3 percent were male. Furthermore, 84.8 percent of 26,295 validly coded 1987-91 examinees were Minnesota examinees, while 15.2 percent received their undergraduate preparation out-of-state. Of 26,830 validly coded ex-

aminees, 72.3 percent were in undergraduate programs when they first attempted the three skills tests, compared to 27.7 percent who had attained, at minimum, a bachelor's degree. According to race/ethnic group 2.2 percent (591) of the 26,861 examinees indicated identification with one of four minority racial/ethnic groups.

How did the overall performance of female examinees compare to male examinees on the three skills tests of the PPST?

Table 4 presents a comparison of the mean scores of female examinees and male examinees on the three tests of the PPST. Data indicate that overall male examinees had higher mean scores on the reading and mathematics tests than did female examinees. There was a statistically significant difference in mean scores for male examinees compared to female examinees on both the reading and mathematics tests.

On the writing test, the mean score for female examinees (176.9) was higher than the mean score for male examinees (175.8). A statistically significant difference between the means on the writing test existed.

How did the performance of Minnesota female examinees compare to Minnesota male examinees on the three skills tests of the PPST?

Table 5 presents a comparison of the mean scores of Minnesota female examinees and Minnesota male examinees. Mean scores of Minnesota male examinees were higher on the reading and mathematics tests than mean scores of Minnesota female examinees. A statistically significant difference existed.

On the writing test the mean scores of Minnesota female examinees (176.8) were higher than the mean scores of Minnesota male examinees (175.7). A statistically significant difference existed between the writing mean scores.

How did the performance of Non-Minnesota Females Compared with Non-Minnesota Males?

Table 6 indicates that Non-Minnesota male examinees, compared to Non-Minnesota female examinees, demonstrated higher performance in mean scores on the

mathematics test. There was a statistically significant difference in the means on the mathematics test. Non-Minnesota female examinees had a higher mean score on the writing test than did Non-Minnesota males. A statistically significant difference existed between the writing means. On the reading test the mean scores for Non-Minnesota females (180.7) and Non-Minnesota males (180.6) were practically identical.

How did the performance of Minnesota female examinees compare to Non-Minnesota female examinees on the three skills tests of the PPST?

Table 7 compares the mean scores of Minnesota female examinees to Non-Minnesota female examinees on the three skills tests of the PPST. Mean scores for Minnesota females were slightly lower than the mean scores of Non-Minnesota females on all three tests. The mean score on the reading test for Minnesota females was 179.6 compared to 180.7 for Non-Minnesota females. The mean score on the mathematics test for Minnesota females was 179.8 compared to the mean score of Non-Minnesota females of 180.4. The mean score on the writing test for Minnesota females was 176.8 compared to the mean score of Non-Minnesota females of 177.7. There was a statistically significant difference in the reading, writing, and mathematics tests mean scores.

How did the performance of Minnesota male examinees compare to Non-Minnesota male examinees on the three skills tests of the PPST?

Table 8 presents the mean scores of Minnesota male examinees compared to Non-Minnesota male examinees on the three skills tests. On all three skills tests, mean scores for Minnesota males were lower than for Non-Minnesota males. There was a statistically significant difference in the mean scores on all three tests.

How did the performance of Minnesota and Non-Minnesota examinees compare on the three skills tests of the PPST?

Table 9 presents the frequencies, mean scores, and standard deviations for Minnesota and Non-Minnesota examinees on the three skills tests of the PPST. On the three skills tests (reading, mathematics, and writing), the mean scores for Non-Minnesota examinees were slightly higher than the mean scores for Minnesota examinees. For the

three tests, a statistically significant difference existed between the mean scores of Minnesota and Non-Minnesota examinees. The mean score on the reading test for Non-Minnesota examinees was 180.7 compared to the mean score of Minnesota examinees of 179.7. The mean score on the mathematics test for Non-Minnesota examinees was 181.0 compared to the mean score of Minnesota examinees of 180.5. The mean score on the writing test for Non-Minnesota examinees was 177.4 compared to the mean score of Minnesota examinees of 176.5.

When during their educational career did Minnesota examinees and Non-Minnesota examinees first attempt the three skills tests of the PPST?

Table 10 indicates that approximately 83 percent of the Minnesota examinees were in undergraduate programs when they first attempted the three skills tests, compared to 33 percent of the Non-Minnesota examinees.

College seniors made up approximately 31 percent of the 1987-91 Minnesota examinees, compared to 52 percent who were at or below the junior educational level. For Non-Minnesota examinees, 13.0 percent were seniors at their first attempt on the three skills tests, more than 19 percent were juniors or below, and nearly 65 percent were at the post-baccalaureate level.

How did the performance of Minnesota examinees compare with Non-Minnesota examinees according to educational level?

Table 11 presents a comparison of the mean scores on the three skills tests for Minnesota and Non-Minnesota examinees by educational level. The data indicate that for both Minnesota and Non-Minnesota examinees the higher the level of education at the initial time of taking the skills tests of the PPST the higher the level of performance. Although mean scores were nearly the same on all three tests for Minnesota and Non-Minnesota examinees by educational level (example: Minnesota pre-seniors compared with Non-Minnesota pre-seniors), statistically significant differences existed only on the reading and mathematics tests and between performances of seniors and post-senior examinees.

Minnesota post-seniors demonstrated higher levels of performance than did either Minnesota seniors or Minnesota pre-seniors on all three tests. Minnesota seniors demonstrated higher levels of performance than did Minnesota pre-seniors on all three tests. Tables 12-14 show that a statistically significant difference among Minnesota post-senior, senior, and pre-senior mean scores existed.

Non-Minnesota post-seniors demonstrated higher levels of performance than did either Non-Minnesota seniors and Non-Minnesota pre-seniors on all three tests. Non-Minnesota seniors demonstrated higher levels of performance than did Non-Minnesota pre-seniors on all three tests. Tables 15-17 show that a statistically significant difference among Non-Minnesota post-senior, compared with Non-Minnesota senior and Non-Minnesota pre-senior mean scores, existed on all three tests.

How did the performance of examinees compare between non-minority and minority examinees?

Tables 18-19 show that minority examinees compared to non-minority examinees demonstrated lower mean scores on the reading, mathematics, and writing tests. A statistically significant difference existed between the mean scores on all three tests.

Data further show that the mean scores on each of the three tests for each specific minority group (Asian/Pacific, Black, Hispanic, and Native American) were lower than mean scores of White examinees. There was a statistically significant difference in the mean scores of each specific minority group compared to non-minority examinees on the reading, mathematics, and writing tests.

Pass/Fail Patterns

The following section on pass/fail patterns provides a summary of the number of examinees who failed more than one test at the time of their first attempt, along with the examinee success rates on retakes of the three skills tests.

How did 1987-91 examinees as a population perform on the 1st, 2nd, 3rd, 4th, or 5th Attempts?

Table 20 shows that on the first attempt the mean score for all examinees was 179.4 on reading, 180.1 on mathematics, and 176.3 on writing. All three initial mean scores were well above the Minnesota established adjusted qualifying scores (173 for reading, 169 for mathematics, and 172 for writing). However, after the first attempt, mean score performance on retakes decreased substantially. On the second attempt, the mean scores fell to 172.8 on the reading test,170.2 on the mathematics test, and 172.4 on the writing test. On all three tests, mean scores for the second attempt nearly met or were above the qualifying scores. The mean score on all three tests dropped slightly below the qualifying margin after further attempts.

How did the non-qualifying percentages of Minnesota and Non-Minnesota examinees on their first attempt at the PPST compare to the projected non-qualifying percentages?

Based on the projected non-qualifying percentages established from the results of the 1986 Minnesota field testing of the PPST, it was projected for Minnesota examinees that 13.6 percent of the examinees would not qualify in reading, 7.4 percent of the examinees would not qualify in mathematics, and 6.0 percent of the examinees would not qualify in writing. Based on the ETS collected data of the percent of college seniors and graduates across 38 states, it was projected for Non-Minnesota examinees that 22.0 percent of the examinees would not qualify in reading, 13.0 percent of the examinees would not qualify in mathematics, and 15.0 percent of the examinees would not qualify in writing.

Tables 21-22 show the number and percentage of Minnesota and Non-Minnesota examinees who failed to obtain a qualifying score on one of the three skills tests of the PPST during one or more attempts. As indicated, on the first attempt fewer Minnesota examinees than projected failed to obtain a passing score on the writing test only. On the first attempt fewer Non-Minnesota examinees than projected failed to obtain a pass-

ing score on each of the three tests. In addition, on each of the three skills tests, a higher percentage of Minnesota examinees compared to Non-Minnesota examinees failed to obtain a passing score.

What percentage of Minnesota and Non-Minnesota examinees failed to obtain a qualifying score on retaking the reading, mathematics, or writing tests of the PPST?

Overall, it should be noted that the success rate on each of the three PPST skills tests after as many as five attempts (except for male examinees on the mathematics test, and pre-senior examines on the reading and writing tests) was above 92.0 percent on each test for all of the 1987-91 examinees who attempted the tests to meet Minnesota licensure requirements.

For Minnesota examinees, 93.2 percent of the examinees passed the reading test, 96.9 percent passed the mathematics test, and 92.8 percent passed the writing test.

The percentages of Non-Minnesota examinees passing each of the three tests were higher than for Minnesota examinees. For Non-Minnesota examinees, 95.2 percent passed the reading test, 98.6 percent passed the mathematics test, and 95.1 percent passed the writing test.

What percentage of the examinees, by gender, in-state/out-of-state preparation, educational level, and racial/ethnic group attempted one or more of the skills tests more than once?

Tables 23-26 present the attempt and success rates by gender, educational level, and racial/ethnic group for those examinees who attempted one of the three skills tests more than once but fewer than six times.

Gender

As shown on Table 23, 93.7 percent of all female examinees and 92.6 percent of all male examinees successfully passed the reading test. A higher overall percentage of male examinees (98.3 percent) compared to female examinees (96.6 percent) passed the mathematics test. For the writing test, a higher percentage of female examinees (94.4 percent) compared to male examinees (89.3 percent) passed.

A higher proportional percentage of female examinees than male examinees failing one of the three skills tests attempted the test a second time. Of those who failed a test on their initial attempt, percentages for female examinees failing and retaking were 55.7 percent on the reading test, 54.7 percent on the mathematics test, and 53.6 percent on the writing test, compared to percentages for male examinees of 49.9 percent on the reading test, 51.5 percent on the mathematics test, and 51.8 percent on the writing test.

Educational Level

Indicated in Table 24, post-senior examinees demonstrated a higher percentage of success rate than did senior and pre-senior examinees after as many as five attempts. The overall success rate on the three tests for post-seniors was greatest on the writing test (99.7 percent), followed by success on the reading and mathematics tests (99.3 percent). The total percentage of post-senior and senior examinees initially passing was above the projected qualifying percentages for each of the reading and mathematics tests.

Pre-senior examinees demonstrated a higher overall pass rate percentage than projected only on the mathematics test.

Racial/Ethnic Group

Table 25 shows multiple attempt data on the three tests of the PPST by racial/ethnic group. Data indicate that none of the first attempt passing percentages for the four racial/ethnic groups (Asian/Pacific, Black, Hispanic, or Native American) equaled or were above the projected passing rates. Examinees identifying their racial/ethnic group to be either Asian/Pacific, Black, Hispanic, or Native American demonstrated greatest success on the mathematics test, followed by success on the reading test, with least success on the writing test.

Total pass rates for each of the four minority groups on all three tests were below the pass rate of examinees identifying themselves as White.

How many examinees did not retake a test?

From 33.3 percent, to as high as 66.7 percent, of all examinees who on the first attempt failed one of the three PPST tests did not retake the test failed. Table 26 presents data indicating that according to racial/ethnic group, 66.7 percent of the Native Americans who initially failed the mathematics test did not retake the test, while only 33.3 percent of the Hispanic examinees who failed the mathematics test on the initial attempt did not retake the test. Approximately 50.0 percent of the Hispanic examinees who initially failed the reading and writing tests did not retake the tests. The percentage rate for Black examinees failing and not retaking one of three tests ranged between 59.1 to 63.4 percent, and for Asian/Pacific examinees, 56.8 to 60.7 percent who failed one of the three skills test did not retake the test failed.

It should also be noted that for non-minority examinees approximately 44.0 percent failing a test on the first attempt did not retake the test.

On the first attempt, what percentage of the female and male examinees failed one or more skills tests?

Table 27 shows the frequencies and percentages according to gender of examinees who failed one or more skills tests. Of the 26,302 valid cases, a total of 80.2 percent of the 1987-91 examinees passed all three skills tests on the first attempt. On the first attempt, 81.4 percent of the female examinees passed all three skills tests, compared to 76.7 percent of the male examinees. For the 26,302 valid cases, the highest percentage of failure (13.3 percent) occurred for one test. According to gender, 12.4 percent of the female examinees failed one test, compared to 16.0 percent of the male examinees.

On the first attempt, what percentage of the in-state/out-of-state examinees failed one or more skills tests?

Table 28 shows the frequencies and percentages, according to in-state/out-of-state preparation, for examinees who failed one or more skills tests on the first attempt. Of the 25,985 valid cases, 80.2 percent passed all three PPST skills tests on their first attempt. On the first attempt, 79.7 percent of the Minnesota examinees passed all three

PPST skills tests on their first attempt, compared to 82.9 percent of the Non-Minnesota examinees. The number of tests most frequently failed was one. For the 25,985 validly coded examinees 13.3 percent failed one test.

On the first attempt, what percentage of the pre-seniors, seniors, and post-seniors failed one or more skills tests?

Table 29 presents the frequencies and percentages, according to educational level, of examinees who failed one, two, or three skills tests on their first attempt at taking all three tests. On the first attempt, 88.6 percent of the post-senior examinees passed all three skills tests, followed by seniors (80.8 percent), and pre-seniors (75.2 percent). The percentage of examinees to fail one, two, or three skills tests was highest for pre-seniors and lowest for post-seniors. The highest percentage of failure occurring for one test was 16.3 percent for pre-seniors, followed by 13.2 percent for seniors, and 7.9 percent for post-seniors.

On the first attempt, what was the performance level of examinees by racial/ethnic group on one or more skills tests?

Table 30 shows the performance level in percentages for examinees who on the first attempt failed more than one skills test by racial/ethnic group. The percentage reported for examinees taking each of the three skills test and passing all three are Asian\Pacific examinees 44.9 percent, Black Examinees 42.5 percent, Hispanic examinees 56.4 percent, Native American examinees 52.6 percent, and White examinees 80.8 percent.

Which tests were most frequently failed?

Tables 31-33 present the number and percentages for examinees who failed either the reading, mathematics, or writing tests on their first attempt. For all three skills tests and according to the three variables (gender, in-state/out-of-state preparation, and educational level), the skills test most frequently failed was the writing test (12.1 percent). The mathematics test was the least frequently failed (5.2 percent).

Based on the analysis by gender, there was a statistically significant difference in the percentage of male and female examinees who passed/failed the mathematics or writing tests on their first attempt.

According to in-state/out-of-state preparation, there was a statistically significant difference in the proportional percentage of pass/fail on the reading, mathematics, and writing tests.

According to educational level, the data indicate that for all three tests (reading, mathematics, and writing), the percentages of examinees who failed were higher for examinees at the pre-senior level, followed by the seniors, and lowest for post-senior examinees. There was a statistically significant difference on each test in the percentages of pre-seniors, seniors, and post-seniors who failed each test.

Table 34 shows overall a higher percentage of minority examinees most frequently failed the writing test (38.3 percent), followed by the reading test (32.3 percent), and the mathematics test (18.5 percent). The percentages of minorities failing the writing tests were lower for minorities prepared in Minnesota (37.2 percent) compared to Non-Minnesota (41.9 percent) examinees. The percentage of minorities failing the reading and mathematics tests was nearly the same for Non-Minnesota minorities compared to Minnesota minority examinees.

Tables 35-37 provide further analysis of the data according to Minnesota/Non-Minnesota, educational level, and racial/ethnic group. Overall, the failing percentages of Minnesota Black examinees and Native American examinees on the reading and writing tests were generally lowest for post-seniors, followed by seniors, and greatest for pre-seniors. On the reading, mathematics, and writing tests, Minnesota Asian senior examinees demonstrated a higher success percentage than did post-senior and pre-senior examinees.

Report on Performance Comparing First-Year and Fourth-Year Examinees

Data were analyzed and compared for the first and fourth year testing periods. Data presented in Tables 38-45 indicate that there were several cases showing statistically significant differences in the performance of first-year and fourth-year examinees according to gender, in-state/out-of-state preparation, educational level, and racial/ethnic group.

Mean scores for first-year examinees were higher overall than fourth-year examinees on the reading, mathematics, and writing tests. A statistically significant difference at the 0.05 level existed between mean scores of several subgroups.

Table 44 indicates that a statistically significant difference in mean scores existed among first-year and fourth-year minority examinees on the reading and writing tests.

An analysis of first-year and fourth-year examinees according to the specific racial/ethnic group identification showed that on each of the three skills tests first-year mean scores were generally higher than fourth-year mean scores.

Table 45 indicates that for the specific racial/ethnic analysis of performance, statistically significant differences between first-year and fourth-year minority examinees existed on the reading test for Asian/Pacific examinees, Hipanic examinees, and Native American examinees, and on the writing test for Asian/Pacific and Native American examinees.

Report on Feedback From Institutions

Test Administration Sites/Dates 1987-91

During the 1987-91 Pre-Professional Skills Tests administration period, the following 23 Minnesota institutions served as test center sites:

University of Minnesota-Twin Cities
University of Minnesota-Duluth
University of Minnesota-Morris
Bemidji State University
Mankato State University
Moorhead State University
St. Cloud State University
Southwest State University
Winona State University
Concordia College-Moorhead
Concordia College-St. Paul
Gustavus Adolphus College
Hamline University
St. John's University
St. Olaf College
University of St. Thomas

The following community colleges were added to the authorized test centers:

1988 (added)
Itasca Community College
Mesabi Community College
Rainy River Community College
Rochester Community College
Willmar Community College

1989 (added)
Lakewood Community College
Normandale Community College

Deans and chairpersons of colleges and departments of education at each of the 26 Minnesota colleges and universities offering teacher education programs and designated community college administrators were contacted in efforts to identify appropriate and desirable testing dates for the 1990-91 test administration period. Each institution was asked to identify a maximum of five potential testing dates from eight possible national testing dates provided by Educational Testing Service (ETS). Feedback was reviewed in selecting the below listed 1990-91 Minnesota test dates.

In the review of institutional selected dates, consideration was given to a multitude of factors including starting dates, quarter/semester breaks, interim sessions, time between dates, out-of-state applicants, etc.

1990-91 Minnesota Test Dates

Saturday, October 27, 1990
Saturday, January 26, 1991
Saturday, March 2, 1991
Saturday, May 4, 1991
Saturday, August 3, 1991

The 16 colleges and universities offering teacher education programs and serving as test centers were requested to test on each of the five specified dates. Community colleges offered the test on one to three dates, depending on the individual needs of each campus.

Minnesota Board of Teaching Required Evaluation

The Minnesota Board of Teaching included in its recommended evaluation plan of the PPST administration that the 26 Minnesota colleges and universities and the 7 community colleges designated as testing sites provide feedback regarding the type of remedial opportunities available to students and the appropriateness of test dates and sites.

Institutional Responses to Providing Remedial Assistance and Services

> **In accordance with Minnesota Rules, part 8700.0210, colleges and universities must provide candidates who fail the examinations access to opportunities to enhance their skills. What assistance and services are provided by your institution to satisfy this requirement?**

Minnesota colleges and universities continue to provided candidates who failed the examinations access to opportunities to enhance their skills. Assistance programs and services vary in the types of opportunities afforded candidates. Institutions indicated that they had no major problem in providing students with guidance/help in order that they might be successful on another attempt.

Each institution provided assistance in the area of skill improvement. These services generally were provided through on-campus learning centers, academic skills centers, skill laboratories, etc., in the areas of reading, mathematics, and writing. Colleges not providing on-campus services of this nature promoted the attendance at study sessions at other institutions.

Study guides for the PPST are available at numerous locations on campuses including college bookstores and main offices of the college of education, as well as being placed on reserve at college libraries and made available at skills centers and laboratories.

Early advisement of students continues to be central to most of the institutional service programs. College advisors often meet with students, individually and in groups, to assess possible difficulties and to prescribe and identify appropriate tutorial services, test-taking seminars, and study materials to help better prepare candidates to take examinations.

SUMMARY

The following findings are based on the 1987-91 data for 26,861 examinees who attempted the three skills tests of the Pre-Professional Skills Tests and who entered valid codes for identification according to gender, in-state/out-of-state preparation, educational level, and racial/ethnic group variables.

Females make up 74.7 percent of the total examinees. An increase in the percentage of Non-Minnesota examinees was indicated, from 7.2 percent in the first year to 15.2 percent for the total four year period. Nearly 29.1 percent of the four year examinees were educationally at the baccalaureate/post-baccalaureate level. This was an increase from 18.1 percent during the first year of testing.

The number of 1987-88 minority examinees (61) increased to 591 examinees over the four year period. However, throughout the four year testing period, minority examinees made up only 2.2 percent of the total four year population of 26,861.

Passing rates for Minnesota examinees on the first attempt on the three PPST skills tests were reading 88.6 percent, mathematics 94.8 percent, and writing 87.6 percent. Overall, the success rate on each of the three PPST skills tests after as many as five attempts was above 92.0 percent on each of the tests. Passing rates after retaking tests were reading 93.2 percent, mathematics 96.9 percent, and writing 92.8 percent.

Findings: First-Year and Fourth-Year Comparison:

An analysis of data for first-year and fourth-year examinees according to each of the four variables (gender, in-state/out-of-state preparation, educational level, and racial/ethnic group) indicated that comparisons of subgroups showed a number of statistically significant differences in performance. Mean scores for first-year examinees were higher overall than fourth-year examinees on the reading, mathematics, and writing tests. A statistically significant difference at the 0.05 level existed between mean scores of several subgroups.

Four-Year Data Summary

The following findings are based on the 1987-91 data on examinees who attempted the three skills tests of the Pre-Professional Skills Tests and who entered valid codes for identification according to gender, in-state/out-of-state preparation, educational level, and racial/ethnic group variables.

Male examinees overall demonstrated a higher level of performance on the reading and mathematics tests of the Pre-Professional Skills Tests than did female examinees. Female examinees demonstrated a higher level of performance on the writing test of the Pre-Professional Skills Tests than did male examinees.

Non-Minnesota examinees continue to demonstrate higher performance than Minnesota examinees on all three tests. However, for the fourth consecutive year there is little difference in the mean scores.

The data indicate that for both Minnesota and Non-Minnesota examinees the higher the level of education at the initial time of taking the skills tests of the PPST the higher the level of performance.

For all examinees, analyzed by gender, in-state/out-of-state preparation, educational level, and racial/ethnic group, initial attempt success was highest on the mathematics test, followed by performance on the reading test, and then writing performance.

Female compared to Male

1. Male examinees demonstrated a higher level of performance on the reading and mathematics tests of the Pre-Professional Skills Tests than did female examinees.

2. Female examinees demonstrated a higher level of performance on the writing test of the Pre-Professional Skills Tests than did male examinees.

Minnesota: Gender

3. Minnesota male examinees demonstrated a higher level of performance on the reading and mathematics tests of the Pre-Professional Skills Tests than did Minnesota female examinees.

4. Minnesota female examinees demonstrated a higher level of performance on the writing test of the Pre-Professional Skills Tests than did Minnesota male examinees.

Non-Minnesota: Gender

5. Non-Minnesota male examinees demonstrated a higher level of performance on the mathematics test of the Pre-Professional Skills Tests than did Non-Minnesota female examinees.

6. Non-Minnesota female examinees demonstrated a higher level of performance on the writing test of the Pre-Professional Skills Tests than did Non-Minnesota male examinees.

Minnesota compared to Non-Minnesota: Gender

7. Non-Minnesota female examinees demonstrated a higher level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did Minnesota female examinees.

8. Non-Minnesota male examinees demonstrated a higher level of performance on the reading and mathematics tests of the Pre-Professional Skills Tests than did Minnesota male examinees.

Minnesota compared to Non-Minnesota

9. Non-Minnesota (prepared out-of-state) examinees demonstrated a higher level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did Minnesota examinees.

Pre-Senior, Senior, Post-Senior

10. Minnesota post-senior examinees demonstrated a higher level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did Minnesota senior and/or pre-senior examinees.

11. Non-Minnesota post-senior examinees demonstrated a higher level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did Non-Minnesota senior and/or pre-senior examinees.

12. Minnesota senior examinees demonstrated a higher level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did Minnesota pre-senior examinees.

13. Non-Minnesota senior examinees demonstrated a higher level of performance on the reading test of the Pre-Professional Skills Tests than did Non-Minnesota pre-senior examinees.

14. Minnesota post-senior examinees demonstrated a higher level of performance on reading and mathematics tests of the Pre-Professional Skills Tests than did Non-Minnesota post-senior examinees.

15. Minnesota senior examinees demonstrated a higher level of performance of the mathematics and writing tests of the Pre-Professional Skills Tests than did Non-Minnesota senior examinees.

Racial/Ethnic Group

16. Asian/Pacific, Black, Hispanic, and Native American examinees demonstrated a lower level of performance on the reading, mathematics, and writing tests of the Pre-Professional Skills Tests than did non-minority examinees.

Pass Fail Rates

17. A higher proportional percentage of Non-Minnesota examinees than Minnesota examinees passed the reading, mathematics, and writing tests.

18. A higher proportional percentage of female examinees than male examinees passed the writing test.

19. A higher proportional percentage of male examinees than female examinees passed the mathematics tests.

20. A higher proportional percentage of post-senior examinees passed all three tests compared to senior and pre-senior examinees.

21. A higher proportional percentage of senior examinees passed all three tests compared to pre-senior examinees.

22. A lower proportional percentage of minority examinees passed the reading, mathematics, and writing tests compared to non-minority examinees:

Total Percentages Passing

	Minority	Non-Minority
Reading	73.1	93.9
Mathematics	85.2	97.3
Writing	70.4	93.6

23. Nearly 50.0 percent of all examinees who failed one or more of the three tests on the first attempt did not retake the test(s) they had failed.

Institutional Responses

Feedback on Remediation Activities

24. Each of the 26 Minnesota institutions of higher education offering teacher preparation programs continue to provide enrolled and/or graduating candidates who failed the examinations access to remedial services including, but not limited to, on-campus learning centers, academic skills centers, skill laboratories, etc.

Feedback on Test Dates

25. Overall, Minnesota institutions indicated that the testing schedules met the needs of their candidates. It was suggested that greater attention be given to avoiding setting test dates at times when other examinations are occurring on campus and during semester/term breaks.

Feedback on ETS Services

26. Feedback from the majority of the Minnesota colleges and universities indicated that to their knowledge ETS continues to respond expediently and accurately to inquiries from their students.

RULE CHANGE AND ADMINISTRATIVE ACCOMMODATION

The following rule change did impact the 1990-91 administration year of the four year administration of the Pre-Professional Skills Tests. During the four year testing period in Minnesota, the Board of Teaching has discussed issues related to the administration of the Pre-Professional Skills Tests. Two notable responses to administration of the PPST are as follows:

Rule Change

Rule 8700.0210 [Examinations For Teacher Licenses] - April, 1991

Accommodations for examinees with visual and hearing impairments:

Subpart 1. Examination requirement. An applicant described in Minnesota Statutes, section 125.03, subdivision 5, for an initial license, shall provide official evidence of having successfully completed examinations of skills in reading, writing, and mathematics before being issued an initial Minnesota teaching license. The examinations must have been adopted by the Board of Teaching. An applicant who is deaf must fulfill the mathematics requirement of this part by successfully completing the mathematics examination, and must fulfill the reading and writing requirements of this part either by successfully completing the reading and writing examinations or by evaluation by board approved colleges and universities of demonstrated proficiency (Intermediate Plus) in the expressive and receptive use of alternative communication systems including sigh language and fingerspelling as measured by the Sign Communication Proficiency Inventory (SCPI). This inventory is published by the National Technical Institute for the Deaf in Rochester, New York, and is administered through the College of Education at the University of Minnesota on at least an annual basis. A description of this inventory is available through the Minitex interlibrary loan system in the Journal of Sign Language Studies and American Annals for the Deaf. The inventory is incorporated by reference. Before the 1991 amendment to this part was adopted, the inventory was last published in 1989. It may be periodically changed. An applicant who is blind shall be required to fulfill requirements of this part by successfully completing the examinations with an opportunity to select a reader, to use adaptive visual aids or technology aids, and to complete the testing under adaptive conditions.

Rule Change

Rule 8750.3010 [Examinations for Secondary Vocational Teacher Licenses]

Required that applicants for initial secondary vocational teaching licenses after April 8, 1991, successfully complete an examination of skills in reading, writing, and mathematics, as required by Minnesota Statutes, section 125.05, subdivision 1.

Special Admistration for Examinees with Limited English Proficiency

Recommendations adopted by the Board of Teaching in 1991, on the Evaluation Plan for the PPST included the continued close contact with ETS to ensure that tests acknowledge the multicultural and multiethnic nature of our society and reflect a thoughtful and fair consideration to all potential Minnesota examinees. Following extensive dialogue with the Teacher Programs Services of Educational Testing Service, the Minnesota Board of Teaching arranged with Teacher Program Services (ETS) for a special administration of the PPST for teacher licensure applicants with limited English proficiency. The testing time at the special administration offered on June 13, 1992, was increased by 50 percent for each of the three tests.

An analysis of the performance data for the 83 participating examinees is presented in the research report compiled by Educational Testing Service for the Board of Teaching entitled, Pre-Professional Skills Tests Limited English Proficiency Study, November 1992.

APPENDIX

TABLE 1

Frequency Distributions and Percentages on Three Selected Variables for All PPST Examinees During 1987-91 Statewide Testing for Minnesota Initial Licensure

VARIABLE	FREQUENCY	ADJUSTED PERCENTAGE	CUMULATIVE PERCENTAGE
Gender			
Female	19,866	74.7	
Male	6,740	25.3	
Total:	26,606	100.0	
Missing	255		
Undergraduate Institution			
Minnesota	22,286	84.8	
Non-Minnesota	4,009	15.2	
Total:	26,295	100.0	
Missing	566		
Education Level			
Freshman	501	1.9	1.9
Sophomore	4,562	17.0	18.9
Junior	6,507	24.3	43.2
Senior	7,800	29.1	72.3
Bachelor's	5,168	19.3	91.6
Graduate work	1,408	5.2	96.8
Mater's	837	3.1	99.9
Doctor's	47	.2	100.1
Total:	26,830	100.0	
Missing	31		

TABLE 1
(Continued)

Frequency Distributions and Percentages on Three Selected Variables for All PPST Examinees During 1987-91 Statewide Testing for Minnesota Initial Licensure

VARIABLE	FREQUENCY	ADJUSTED PERCENTAGE	CUMULATIVE PERCENTAGE
Racial/Ethnic Group			
Asian/Pacific	191	.7	.7
Black	141	.5	1.2
Hispanic	120	.5	1.7
Native American	139	.5	2.2
Sub Total:	591	2.2	
Other	120	.3	2.5
White	25,896	97.5	100.0
Total:	26,559	100.0	
Missing	292		

TABLE 2

Cumulative Percentages of Examinees Who Scored Below Selected PPST Reading, Mathematics, and Writing Scaled Scores 1987-91

PPST SCALED SCORE (Mean Scores=x)	READING Qualifying Score 173 n=26,861	MATHEMATICS Qualifying Score 169 n=21,521	WRITING Qualifying Score 172 n=21,521
158	.0	.1	.0
159	.1	.1	.0
160	.1	.2	.0
161	.1	.4	.0
162	.2	.6	.1
163	.4	.8	.1
164	.6	1.2	.2
165	.8	1.7	.3
166	1.2	2.3	.5
167	1.6	2.9	.9
168	2.3	3.7	1.3
169	3.1	5.4	2.1
170	4.0	7.7	3.1
171	4.8	10.1	5.5
172	6.0	12.8	7.7
173	7.2	16.0	12.8
174	11.3	19.1	18.8
175	15.9	22.8	31.1
Writing x= 176	20.0	26.9	40.1
177	25.5	31.7	49.3
178	31.1	36.4	58.4
179	36.8	39.9	70.4
Reading x= 180	42.7	45.2	77.3
Math x= 181	49.6	50.8	83.3
182	56.5	56.4	88.1
183	63.8	61.8	96.6
184	71.5	67.8	96.1
185	80.5	72.6	97.7
186	87.1	78.3	98.9
187	93.4	83.8	99.6
188	97.4	89.1	99.9
189	99.3	93.3	100.0
190	99.9		100.0

In calculating the study values in scaled scores adjusted for tolerance of SEMs, the SEM for each test was subtracted from the decimal value of the study score and the result was rounded to a whole number (.5 always rounded up to maintain consistency with the PPST scoring reports). The SEM is 2.4 for Reading, 2.5 for Writing, and 2.5 for Mathematics.

TABLE 3

Selected Group Reading, Mathematics, and Writing PPST Test Failure Rates Relative to Varying Scaled Cut Scores 1987-91

SELECTED GROUP	READING			MATHEMATICS			WRITING		
	SS 175*	SS 173 (-1SEM)	SS 171 (-2SEM)	SS 171*	SS 169 (-1SEM)	SS 166 (-2SEM)	SS 175*	SS 172 (-1SEM)	SS 170 (-2SEM)
All 1987-91 Examinees	11.9	6.0	4.0	7.7	3.7	1.7	18.8	5.5	2.1
In-State Examinees Minnesota Institutions (1987-91)	16.6	7.4	4.9	7.8	3.7	1.7	32.5	7.9	3.1
Out-of-State Examinees (1987-91)	11.2	6.0	3.9	6.5	3.1	1.4	24.2	6.2	2.7
Minnesota College Seniors Field Test-1986	22.9	13.6	9.3	9.3	7.4	3.2	27.6	6.0	2.2
All Seniors 1987-91	15.1	5.6	3.9	6.4	2.8	1.3	33.4	6.8	3.0
Out-of-State Examinees 38 States 1983-86	29.0	22.0	16.0	18.0	13.0	8.0	32.0	15.0	8.0

*The original mean study values in scaled scores were READING 175.3, MATHEMATICS 171.46, and WRITING 174.6. The study values were obtained by rounding the original scaled scores calculated in decimal values to the nearest whole numbers (.5 always rounded up to maintain consistency with the PPST scoring reports).

NOTE: In calculating the study values in scaled scores adjusted for tolerance of SEMs, the SEM for each test was substracted from the decimal value of the study score and the result was rounded to a whole number. The SEM is 2.4 for Reading, 2.5 for Mathematics, and 2.5 for Writing.

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TABLE 4

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Reading, Mathematics, and Writing Tests of the PPST by GENDER 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Female	18,773	179.8	5.10	2.99*
Male	6,209	180.0	5.38	
Valid Cases	24,982			
Mathematics				
Female	18,181	179.9	6.42	29.85*
Male	5,936	182.7	6.20	
Valid Cases	24,117			
Writing				
Female	18,598	176.9	3.79	-20.50*
Male	6,472	175.8	4.07	
Valid Cases	25,070			

*Significant difference at the 0.05 level.

TABLE 5

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests Comparing MINNESOTA FEMALE EXAMINEES/MINNESOTA MALE EXAMINEES 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Female	15,537	179.6	5.10	3.85*
Male	5,244	179.9	5.28	
Valid Cases	20,781			
Mathematics				
Female	14,986	179.8	6.41	27.43*
Male	5,016	182.6	6.21	
Valid Cases	20,002			
Writing				
Female	15,385	176.8	3.74	-18.53*
Male	5,456	175.7	3.97	
Valid Cases	20,840			

*Significant difference at the 0.05 level.

TABLE 6

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests Comparing NON-MINNESOTA FEMALE EXAMINEES/NON-MINNESOTA MALE EXAMINEES 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Female	2,843	180.7	4.93	-0.58
Male	838	180.6	5.70	
Valid Cases	3,681			
Mathematics				
Female	2,185	180.4	6.40	11.06*
Male	797	183.2	6.06	
Valid Cases	3,612			
Writing				
Female	2,833	177.7	3.84	-7.92*
Male	890	176.5	4.42	
Valid Cases	3,723			

*Significant difference at the 0.05 level.

TABLE 7

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests Comparing MINNESOTA FEMALE EXAMINEES/NON-MINNESOTA FEMALE EXAMINEES 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Minnesota	15,537	179.6	5.10	-10.93*
Non-Minnesota	2,843	180.7	4.93	
Valid Cases	18,380			
Mathematics				
Minnesota	14,986	179.8	6.41	-4.86*
Non-Minnesota	2,815	180.4	6.40	
Valid Cases	17,801			
Writing				
Minnesota	15,384	176.8	3.74	-12.55*
Non-Minnesota	2,833	177.7	3.84	
Valid Cases	18,217			

*Significant difference at the 0.05 level.

TABLE 8

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests Comparing MINNESOTA MALE EXAMINEES/NON-MINNESOTA MALE EXAMINEES 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Minnesota	5,244	179.9	5.28	-3.51*
Non-Minnesota	838	180.6	5.77	
Valid Cases	6,082			
Mathematics				
Minnesota	5,016	182.6	6.21	-2.54*
Non-Minnesota	797	183.2	6.06	
Valid Cases	5,813			
Writing				
Minnesota	5,456	175.7	3.97	-5.91
Non-Minnesota	890	176.5	4.42	
Valid Cases	6,346			

*Significant difference at the 0.05 level.

TABLE 9

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests For EXAMINEES BY IN-STATE / OUT-OF-STATE PREPARATION 1987-91

	Frequency	Mean Score	Standard Deviation	t-Value
Reading				
Minnesota	20,948	179.7	5.15	-11.00*
Non-Minnesota	3,729	180.7	5.15	
Valid Cases	24,677			
Mathematics				
Minnesota	20,162	180.5	6.48	-4.52*
Non-Minnesota	3,658	181.0	6.46	
Valid Cases	23,820			
Writing				
Minnesota	21,023	176.5	3.84	-13.91*
Non-Minnesota	3,770	177.4	4.03	
Valid Cases	24,793			

*Significant difference at the 0.05 level.

TABLE 10

Educational Level Indicating When Minnesota and Non-Minnesota Examinees First Attempted the PPST

READING

LEVEL	MINNESOTA		NON-MINNESOTA	
	Number	Percent	Number	Percent
Freshman	499	2.3	3	0.9
Sophomore	4,610	20.8	306	7.6
Junior	6,379	28.8	438	10.9
Senior	6,765	30.6	523	13.0
Post-Bac.	3,861	17.5	2,845	64.7

MATHEMATICS

LEVEL	MINNESOTA		NON-MINNESOTA	
	Number	Percent	Number	Percent
Freshman	500	2.3	37	0.9
Sophomore	4,608	21.0	306	7.7
Junior	6,356	28.9	437	10.9
Senior	6,702	30.5	518	13.0
Post-Bac.	3,827	17.3	2,702	67.6

WRITING

LEVEL	MINNESOTA		NON-MINNESOTA	
	Number	Percent	Number	Percent
Freshman	498	2.3	37	0.9
Sophomore	4,506	20.9	306	7.7
Junior	6,363	28.9	438	10.9
Senior	6,721	30.5	522	13.0
Post-Bac.	3,832	17.4	2,712	67.5

TABLE 11

Mean Scores for Minnesota and Non-Minnesota Examinees on the Three PPST Skills Tests by Educational Level 1987-91

READING

LEVEL	MINNESOTA		NON-MINNESOTA		
	Number	Mean	Number	Mean	t
Pre-Senior	10,488	178.9	644	179.0	-0.77
Senior	6,472	179.9	456	179.7	0.55
Post-Senior	3,974	181.6	2,624	181.3	*2.52
Valid Cases	20,934		3,724		

MATHEMATICS

LEVEL	MINNESOTA		NON-MINNESOTA		
	Number	Mean	Number	Mean	t
Pre-Senior	10,303	179.8	629	179.6	0.75
Senior	6,081	180.8	446	180.3	1.85
Post-Senior	3,763	182.1	2,578	181.6	*3.11
Valid Cases	20,147		3,653		

WRITING

LEVEL	MINNESOTA		NON-MINNESOTA		
	Number	Mean	Number	Mean	t
Pre-Senior	10,454	176.0	644	176.0	-0.14
Senior	6,556	176.4	485	176.1	1.61
Post-Senior	3,999	177.9	2,636	178.0	-0.91
Valid Cases	21,009		3,765		

***Significant difference at the 0.05 level.**

TABLE 12

Analysis of Variance on PPST Reading Score for Minnesota Examinees by Educational Level 1987-91

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	22150.4	11075.2	435.6*
Within Groups	20931	53222.8	25.4	
Total	20,933	554373.2		

TABLE 13

Analysis of Variance on PPST Mathematics Score for Minnesota Examinees by Educational Level

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	15621.2	7810.6	189.5*
Within Groups	20144	830468.4	41.2	
Total	20,146	846089.6		

TABLE 14

Analysis of Variance on PPST Writing Score for Minnesota Examinees by Educational Level

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	11430.3	5715.2	402.5*
Within Groups	21006	298263.8	14.2	
Total	21,008	309694.1		

*Significant at the 0.05 level.

TABLE 15

Analysis of Variance on PPST Reading Score for Non-Minnesota Examinees by Educational Level 1987-91

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	3182.1	1591.0	62.5*
Within Groups	3721	94753.3	25.5	
Total	3,721	97935.4		

TABLE 16

Analysis of Variance on PPST Mathematics Score for Non-Minnesota Examinees by Educational Level

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	2347.3	1173.6	28.8*
Within Groups	3650	148994.2	40.8	
Total	3,652	151341.5		

TABLE 17

Analysis of Variance on PPST Writing Score for Non-Minnesota Examinees by Educational Level

Source	D.F.	Sum of Squares	Mean Squares	f
Between Groups	2	3125.9	1563.0	102.0*
Within Groups	3762	57642.9	15.3	
Total	3764	60768.8		

*Significant at the 0.05 level.

TABLE 18

Frequency Distributions, Mean Scores, Standard Deviations, and T-Values on the Three PPST Skills Tests For All Non-Minority/Minority Examinees 1987-91

READING				
	Frequency	**Mean**	**Standard Deviation**	**t**
Non-Minority	24,342	179.9	5.07	*20.05
Minority	515	175.3	7.42	
Valid Cases	24,857			

MATHEMATICS				
	Frequency	**Mean**	**Standard Deviation**	**t**
Non-Minority	23,505	180.7	6.42	*17.79
Minority	482	175.4	7.64	
Valid Cases	23,987			

WRITING				
	Frequency	**Mean**	**Standard Deviation**	**t**
Non-Minority	24,419	176.7	3.82	*20.41
Minority	535	173.3	5.26	
Valid Cases	24,954			

***Significant difference at the 0.05 level.**

TABLE 19

Frequency Distributions, Mean Scores, Standard Deviations, and t-Values on the Three PPST Skills Tests Comparing Specific Racial/Ethnic Group Examinees with White Examinees

READING				
Racial/Ethnic Group	Frequency	Mean	S.D.	t
Asian/Pacific	171	173.5	8.2	*-16.47
Black	121	174.7	5.1	*-11.22
Hispanic	103	177.5	6.9	* 4.79
Native American	120	176.8	6.4	* -6.83
White	24,342	179.9	5.1	
MATHEMATICS				
Racial/Ethnic Group	Frequency	Mean	S.D.	t
Asian/Pacific	150	177.3	7.9	*- 6.38
Black	116	172.6	7.1	*-13.55
Hispanic	102	175.4	6.9	* 8.34
White	23,505	180.7	6.4	
WRITING				
Racial/Ethnic Group	Frequency	Mean	S.D.	t
Asian/Pacific	177	172.1	6.0	*-15.68
Black	122	173.1	4.8	*-10.32
Hispanic	109	174.1	5.2	* 7.05
Native American	127	174.2	4.4	* -7.33
White	24,419	176.7	3.8	

*Significant difference at the 0.05 level.

TABLE 20

Number and Mean Scores on Three PPST Skills Tests for all 1987-91 Examinees on 1st, 2nd, 3rd, 4th, and 5th Attempts

Number of Attempt	Reading Mean Score	Mathematics Mean Score	Writing Mean Score
First Attempt	179.4 n=26,728	180.1 n=26,632	176.3 n=26,710
Second Attempt	172.8 n=1,617	170.2 n=758	172.4 n=1726
Third Attempt	171.3 n=509	168.8 n=182	171.6 n=461
Fourth Attempt	171.0 n=205	167.9 n=60	170.9 n=147
Fifth Attempt	171.2 n=90	168.5 n=24	171.2 n=61

TABLE 21

Number and Percentage of Minnesota
Retakes on the PPST 1987-91

READING

	1st Attempt	2nd Attempt	3rd Attempt	4th Attempt	5th Attempt	TOTAL PASS RATE
Attempted	22,129	1,334	408	160	74	
Failed	2,528	583	237	95	40	
	11.4%	43.7%	58.1%	59.4%	54.1%	
Passed	19,601	751	171	65	34	20,622
	88.6%	56.3%	41.9%	40.6%	45.9%	93.2%

MATHEMATICS

Attempted	22,041	573	132	47	18	
Failed	1,146	212	72	26	7	
	5.2%	37.0%	54.5%	55.3%	38.9%	
Passed	20,895	361	60	21	11	21,348
	94.8%	63.0%	45.5%	44.7%	61.1%	96.9%

WRITING

Attempted	22,102	1,412	368	108	42	
Failed	2,734	539	168	55	17	
	12.4%	38.2%	45.7%	50.9%	40.5%	
Passed	19,368	873	200	53	25	20,519
	87.6%	61.4%	54.3%	49.1%	59.5%	92.8%

Projected non-qualifying percentages for Minnesota seniors 13.6 percent for Reading, 7.4 percent for Mathematics, and 6.0 percent for Writing for the first-time examinees

TABLE 22

Number and Percentage of Non-Minnesota
Retakes on the PPST 1987-91

READING

	1st Attempt	2nd Attempt	3rd Attempt	4th Attempt	5th Attempt	TOTAL PASS RATE
Attempted	4,031	241	83	34	18	
Failed	375	110	53	22	10	
	9.3%	45.6%	63.9%	64.7%	55.6%	
Passed	3,656	131	30	12	8	3,837
	90.7%	54.4%	36.1%	35.3%	44.4%	95.2%

MATHEMATICS

Attempted	4,023	1057	45	10	5	
Failed	204	47	18	4	2	
	5.1%	29.9%	40.0%	40.0%	40.0%	
Passed	3,819	110	27	6	3	3,965
	94.9%	70.1%	60.0%	60.0%	60.0	98.6%

WRITING

Attempted	4,036	227	86	32	17	
Failed	431	107	45	21	7	
	10.7%	38.6%	52.3%	65.6%	41.2%	
Passed	3,605	170	41	11	10	3,837
	89.3%	61.4%	47.7%	34.4%	58.8%	95.1%

Projected non-qualifying percentages for Non-Minnesota seniors and graduates 22.0 percent for Reading, 13.0 percent for Mathematics, and 15.0 percent for Writing for the first-time examinees

TABLE 23
Frequency Distributions and Percentage for All
Retakes on the PPST by Gender
1987-91

READING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Attempted	19,771	6,704	1,221	379	387	119	150	52	66	30		
Failed	2,193	760	528	182	224	76	85	38	36	18		
	11.1%	11.3%	43.2%	48.0%	57.9%	63.9%	56.7%	73.1%	54.5%	60.0%		
Passed	17,580	5,944	693	197	163	43	65	14	30	12	18,531	6,210
	88.9%	88.7%	56.8%	52.0%	42.1%	36.1%	43.3%	26.9%	45.5%	40.0%	93.7%	92.6%

MATHEMATICS

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Attempted	19,712	6,673	646	104	158	22	55	5	22	2		
Failed	1,181	202	238	31	82	10	31	1	10	0		
	6.0%	3.0%	36.8%	29.8%	51.9%	45.5%	56.4%	20.0%	45.5%	0.0%		
Passed	18,531	6,471	408	73	76	12	24	4	12	2	19,051	6,562
	94.0%	97.0%	63.2%	70.2%	48.1%	54.5%	43.6%	80.0%	54.5%	100.0%	96.6%	98.3%

WRITING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE	
	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	Male
Attempted	19,747	6,710	1,062	634	279	174	82	63	36	25		
Failed	1,980	1,224	391	255	124	90	46	36	17	9		
	10.0%	18.2%	36.8%	40.2%	44.4%	51.7%	56.1%	57.1%	47.2%	36.0%		
Passed	17,767	5,486	671	379	155	84	36	27	19	16	18,648	5,992
	90.0%	81.8%	63.2%	59.8%	55.6%	48.3%	43.9%	42.9%	52.8%	64.0%	94.4%	89.3%

TABLE 24
Frequency Distributions and Percentage for All
Retakes on the PPST by Educational Level 1987-91

READING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Pre-Senior	10,649 (86%)	1,803 (14%)	245 (59%)	173 (41%)	24 (48%)	26 (52%)	4 (50%)	4 (50%)	0	0	87.7%
Senior	6,650 (90%)	759 (10%)	444 (57%)	336 (43%)	105 (46%)	125 (54%)	37 (54%)	31 (46%)	8 (50%)	8 (50%)	97.8%
Post-Senior	6,430 (94%)	411 (6%)	211 (51%)	203 (49%)	77 (34%)	150 (66%)	40 (31%)	89 (69%)	35 (43%)	46 (57%)	99.3%

MATHEMATICS

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Pre-Senior	11,656 (94%)	788 (6%)	116 (64%)	64 (36%)	8 (42%)	11 (58%)	0	3 (100%)	1 (100%)	0	94.7%
Senior	7,019 (95%)	340 (5%)	215 (64%)	120 (36%)	40 (51%)	39 (49%)	11 (52%)	10 (48%)	5 (83%)	1 (17%)	99.1%
Post-Senior	6,535 (96%)	266 (4%)	154 (64%)	87 (36%)	42 (50%)	42 (50%)	17 (47%)	19 (53%)	8 (47%)	9 (53%)	99.3%

WRITING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Pre-Senior	10,365 (85%)	1,814 (15%)	234 (63%)	135 (37%)	28 (61%)	18 (39%)	2 (29%)	5 (71%)	0	1 (100%)	85.4%
Senior	6,450 (87%)	955 (13%)	538 (61%)	345 (39%)	118 (57%)	90 (43%)	18 (43%)	24 (57%)	15 (71%)	6 (29%)	96.4%
Post-Senior	6,351 (93%)	478 (7%)	293 (62%)	177 (38%)	97 (47%)	109 (53%)	45 (46%)	53 (54%)	20 (51%)	19 (49%)	99.7%

TABLE 25
Frequency Distributions and Percentage for All
Retakes on the PPST by Racial/Ethnic Group 1987-91

READING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Asian/ Pacific	105 (57%)	81 (43%)	7 (20%)	28 (80%)	4 (22%)	14 (78%)	1 (13%)	7 (87%)	0	4 (100%)	117 (62.9%)
Black	95 (68%)	44 (32%)	4 (22%)	14 (78%)	1 (13%)	7 (87%)	1 (25%)	3 (75%)	1 (33%)	2 (67%)	102 (73.4%)
Hispanic	90 (76%)	29 (24%)	3 (21%)	11 (79%)	5 (63%)	3 (37%)	0	2 (100%)	0	2 (100%)	98 (82.4%)
Native American	99 (72%)	38 (28%)	6 (40%)	9 (60%)	1 (14%)	6 (86%)	0	2 (100%)	1 (100%)	1 (33%)	108 (78.9%)
White	23,013 (89%)	2,763 (11%)	875 (57%)	649 (43%)	195 (42%)	270 (58%)	78 (42%)	107 (58%)	39 (46%)	45 (54%)	24,200 (93.9%)

MATHEMATICS

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Asian/ Pacific	154 (85%)	28 (15%)	4 (36%)	7 (64%)	1 (33%)	2 (67%)	0	0	0	0	159 (87.4%)
Black	96 (70%)	41 (30%)	6 (40%)	9 (60%)	2 (67%)	1 (33%)	0	0	0	0	104 (75.9%)
Hispanic	96 (82%)	21 (18%)	4 (29%)	10 (71%)	3 (33%)	6 (67%)	2 (50%)	2 (50%)	1 (50%)	1 (50%)	106 (90.6%)
Native American	116 (85%)	21 (15%)	3 (43%)	4 (57%)	0	3 (100%)	0	0	0	0	119 (86.9%)
White	24,423 (95%)	1,270 (5%)	464 (66%)	238 (34%)	83 (51%)	79 (49%)	26 (46%)	30 (54%)	13 (59%)	9 (41%)	25,009 (97.3%)

(Table 27 continues on next page).

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TABLE 25 (Cont.)

WRITING

	1st Attempt		2nd Attempt		3rd Attempt		4th Attempt		5th Attempt		TOTAL PASS RATE
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	
Asian/ Pacific	93 (49%)	95 (51%)	14 (34%)	27 (66%)	2 (12%)	14 (88%)	1 (11%)	8 (89%)	2 (40%)	3 (60%)	112 (59.6%)
Black	90 (65%)	48 (35%)	7 (39%)	11 (61%)	0	5 (100%)	1 (100%)	0	0	0	98 (71.0%)
Hispanic	80 (67%)	40 (33%)	5 (28%)	13 (72%)	4 (36%)	7 (64%)	4 (80%)	1 (20%)	0	1 (100%)	93 (77.5%)
Native American	93 (67%)	46 (33%)	13 (59%)	9 (41%)	2 (29%)	5 (71%)	0	3 (100%)	1 (100%)	0	109 (78.4%)
White	22,776 (88%)	2,977 (12%)	1,013 (63%)	594 (37%)	233 (56%)	186 (44%)	59 (46%)	70 (54%)	32 (59%)	22 (41%)	24,113 (93.6%)

Table 26
Frequency Distributions and Percentage of
Examinees Who Attempted Tests More Than Once
by Racial/Ethnic Group 1987-91

READING

	Total Number First Attempting	Number Failed On First Attempt	Number Attempting More Than Once	Number Not Attempting More Than Once	Percentage Failed Not Re-Attempting
Asian/Pacific	186	81	35	46	56.8
Black	139	44	18	26	59.1
Hispanic	119	29	14	15	51.7
Native American	137	38	15	23	60.5
White	25,776	2,763	1,524	1,239	44.8

MATHEMATICS

	Total Number First Attempting	Number Failed On First Attempt	Number Attempting More Than Once	Number Not Attempting More Than Once	Percentage Failed Not Re-Attempting
Asian/Pacific	182	28	11	17	60.7
Black	137	41	15	26	63.4
Hispanic	117	21	14	7	33.3
Native American	137	21	7	14	66.7
White	25,693	1,270	702	568	44.7

WRITING

	Total Number First Attempting	Number Failed On First Attempt	Number Attempting More Than Once	Number Not Attempting More Than Once	Percentage Failed Not Re-Attempting
Asian/Pacific	188	95	41	54	56.8
Black	138	48	18	30	62.5
Hispanic	120	40	18	22	55.0
Native American	139	46	22	24	52.0
White	25,753	2,977	1,607	1,370	46.0

TABLE 27
Number and Percentage of Examinees Who on the First Attempt Failed More Than One PPST Skills Tests by Gender*

NUMBER OF TESTS	FEMALES		MALES		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
All Tests Failed	312	1.6	89	1.3	401	1.5
Two Tests Failed	921	4.7	395	5.9	1,316	5.0
One Test Failed	2,427	12.4	1,066	16.0	3,493	13.3
No Tests Failed	15,988	81.4	5,104	76.7	21,092	80.2

*Not all examinees took all three tests. Percentages are based on 26,302 valid cases.

TABLE 28
Number and Percentage of Examinees Who on the First Attempt Failed More Than One PPST Skills Tests by In-State/Out-of-State Preparation*

NUMBER OF TESTS	MINNESOTA		NON-MINNESOTA		TOTAL	
	Number	Percent	Number	Percent	Number	Percent
All Tests Failed	336	1.5	46	1.1	382	1.5
Two Tests Failed	1,113	5.1	190	4.7	1,303	5.0
One Test Failed	3,008	13.7	448	11.2	3,456	13.3
No Tests Failed	17,527	79.7	3,317	82.9	20,844	80.2

*Not all examinees took all three tests. Percentages are based on 25,985 valid cases.

TABLE 29
Number and Percentage of Examinees Who on the First Attempt Failed More Than One PPST Skills Tests by Educational Level*

NUMBER OF TESTS	PRE-SENIOR		SENIOR		POST-SENIOR	
	Number	Percent	Number	Percent	Number	Percent
All Tests Failed	239	1.9	110	1.5	56	.8
Two Tests Failed	811	6.5	331	4.5	182	2.7
One Test Failed	2,027	16.3	970	13.2	537	7.9
No Tests Failed	9,341	75.2	5,919	80.8	5,999	88.6

*Not all examinees took all three tests. Percentages are based on 26,522 valid cases.

TABLE 30

Number and Percentage of Examinees Who on The First Attempt Failed More Than One PPST Skills Test By Racial/Ethnic Group*

	Asian/ Pacific	Black	Hispanic	Native American	White	TOTALS
All Tests Failed	22 12.4%	17 12.7%	11 9.4%	10 7.3%	341 1.3%	401 1.5%
Two Tests Failed	46 25.8%	16 11.9%	14 12.0%	19 13.9%	1,221 4.8%	1,316 5.0%
One Test Failed	30 16.9%	44 32.8%	26 22.2%	36 26.3%	3,359 13.1%	3,495 13.3%
No Tests Failed	80 44.9%	57 42.5%	66 56.4%	72 52.6%	20,695 80.8%	20,970 80.1%
Total:	178	134	117	137	25,616	26,182

*Not all examinees took all three tests. Percentages are based on 26,182 valid cases.

TABLE 31

Number and Percentage of Examinees Who on the First Attempt Failed the Reading, Mathematics, or Writing Test by Gender 1987-91

READING			
NUMBER	MALE	FEMALE	TOTAL
Attempted	6,704	19,773	26,477
Failed	760	2,193	2,953
Percent Failed	11.3	11.1	11.2
chi square= 0.28056			

MATHEMATICS			
NUMBER	MALE	FEMALE	TOTAL
Attempted	6,673	19,712	26,385
Failed	202	1,181	1,383
Percent Failed	3.0	6.0	*5.2
chi square= 87.59281			

WRITING			
NUMBER	MALE	FEMALE	TOTAL
Attempted	6,710	19,747	26,457
Failed	1,224	1,980	3,204
Percent Failed	18.2	10.0	*12.1
chi square= 316.74398			

*Significant difference at 0.05 level.

TABLE 32

Number and Percentage of Examinees Who on the First Attempt Failed the Reading, Mathematics, or Writing Test by In-State/Out-of-State Preparation

READING

NUMBER	MINNESOTA	NON-MINNESOTA	TOTAL
Attempted	22,129	4,031	26,160
Failed	2,528	375	2,903
Percent Failed	11.4	9.3	*11.1
chi square= 18.41603			

MATHEMATICS

NUMBER	MINNESOTA	NON-MINNESOTA	TOTAL
Attempted	22,041	4,023	26,064
Failed	1,146	204	1,350
Percent Failed	5.2	5.1	*5.2
chi square= 16.21302			

WRITING

NUMBER	MINNESOTA	NON-MINNESOTA	TOTAL
Attempted	22,102	4,036	26,138
Failed	2,734	431	3,165
Percent Failed	12.5	10.7	*12.1
chi square= 13.61269			

***Significant difference at the 0.05 level.**

TABLE 33

Number and Percentage of Examinees Who on the First Attempt Failed the Reading, Mathematics, or Writing Test by Educational Level 1987-91

READING

NUMBER	PRE-SENIOR	SENIOR	POST-SENIOR	TOTAL
Attempted	12,452	7,409	6,841	26,702
Failed	1,803	759	411	2,973
Percent Failed	14.5	10.2	6.0	*11.2
chi square= 328.47203				

MATHEMATICS

NUMBER	PRE-SENIOR	SENIOR	POST-SENIOR	TOTAL
Attempted	12,444	7,359	6,801	26,604
Failed	788	340	226	1,394
Percent Failed	6.3	4.6	3.9	*5.2
chi square= 59.78516				

WRITING

NUMBER	PRE-SENIOR	SENIOR	POST-SENIOR	TOTAL
Attempted	12,449	7,405	6,829	26,683
Failed	1,814	955	478	3,247
Percent Failed	14.6	12.9	7.0	*12.2
chi square= 241.64115				

***Significant difference at the 0.05 level.**

TABLE 34

Number and Percentage of Examinees Who on the First Attempt Failed the Reading, Mathematics, or Writing Test by Racial/Ethnic Group

READING

	ASIAN/ PACIFIC	BLACK	HISPANIC	NATIVE AMERICAN	TOTAL
Attempted	170	133	106	132	541
Minnesota	138	77	85	115	415
Non-Minnesota	32	56	21	17	126
Number Failed	73	41	23	38	175
Minnesota	56	23	22	35	136
Non-Minnesota	17	18	1	3	39
Percent Failed	42.9	30.8	21.7	28.8	32.3
Minnesota	40.6	29.9	25.9	30.4	32.8
Non-Minnesota	53.1	32.1	4.5	17.6	31.0

MATHEMATICS

	ASIAN/ PACIFIC	BLACK	HISPANIC	NATIVE AMERICAN	TOTALS
Attempted	**165**	**129**	**105**	**132**	**530**
Minnesota	136	76	83	115	410
Non-Minnesota	29	53	21	17	120
Number Failed	**25**	**36**	**16**	**21**	**98**
Minnesota	22	20	14	20	76
Non-Minnesota	3	16	2	1	22
Percent Failed	**15.2**	**27.9**	**15.2**	**15.6**	**18.5**
Minnesota	16.2	26.3	16.9	17.4	18.5
Non-Minnesota	10.3	30.2	9.5	5.9	18.3

TABLE 34 (Continued)

WRITING

	ASIAN\ PACIFIC	BLACK	HISPANIC	NATIVE AMERICAN	TOTALS
Attempted	**169**	**131**	**106**	**132**	**538**
Minnesota	138	76	85	115	414
Non-Minnesota	31	55	21	17	124
Number Failed	**84**	**47**	**32**	**43**	**206**
Minnesota	66	25	26	37	154
Non-Minnesota	18	22	6	6	52
Percent Failed	**49.7**	**35.9**	**30.2**	**32.6**	**38.3**
Minnesota	47.8	32.9	30.6	32.2	37.2
Non-Minnesota	58.1	40.0	28.6	35.3	41.9

TABLE 35

Number and Percentage of Examinees Who on the
First Attempt Failed the Reading Test
by Minnesota/Non-Minnesota - Educational Level - Racial/Ethnic Group

READING

	MINNESOTA/PRE-SENIOR					MINNESOTA/SENIOR					MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	66	19	36	60	11,218	40	25	25	40	6,547	32	33	24	15	3,654
Number Failed	32	7	10	22	1,571	12	10	6	10	639	12	6	6	3	162
Percent Failed	48.5	36.8	27.8	36.7	14.0	30.0	40.0	24.0	25.0	9.8	37.5	18.2	25.0	20.0	4.4

READING

	NON-MINNESOTA/PRE-SENIOR					NON-MINNESOTA/SENIOR					NON-MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	7	5	4	4	758	1	4	1	1	510	24	47	16	12	2,571
Number Failed	5	2	0	1	110	1	2	0	0	64	11	14	1	2	156
Percent Failed	71.4	40.0	0.0	25.3	14.5	100.0	50.0	0.0	0.0	12.5	45.8	29.8	6.3	16.7	6.1

TABLE 36

Number and Percentage of Examinees Who on the
First Attempt Failed the Mathematics Test
by Minnesota/Non-Minnesota - Educational Level - Racial/Ethnic Group

MATHEMATICS

	MINNESOTA/PRE-SENIOR					MINNESOTA/SENIOR					MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	66	19	36	60	11,194	40	25	24	40	6,486	30	32	23	15	3,625
Number Failed	12	6	7	15	671	5	7	5	3	276	5	7	2	2	98
Percent Failed	18.2	31.6	19.4	25.0	6.0	12.5	28.0	20.8	7.5	4.3	16.7	21.9	8.7	13.3	2.7

MATHEMATICS

	NON-MINNESOTA/PRE-SENIOR					NON-MINNESOTA/SENIOR					NON-MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	7	4	4	4	758	1	3	1	1	507	21	46	16	12	2,554
Number Failed	2	1	1	0	44	0	0	0	0	33	1	15	1	1	93
Percent Failed	28.6	25.0	25.0	0.0	5.8	0.0	0.0	0.0	0.0	6.5	4.8	32.6	6.3	8.3	3.6

TABLE 37

Number and Percentage of Examinees Who on the
First Attempt Failed the Writing Test
by Minnesota/Non-Minnesota - Educational Level - Racial/Ethnic Group

WRITING

	MINNESOTA/PRE-SENIOR					MINNESOTA/SENIOR					MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	66	19	36	60	11,195	41	24	25	40	6,503	31	33	24	15	3,626
Number Failed	35	9	13	26	1,533	16	10	8	11	782	15	6	5	0	208
Percent Failed	53.0	47.4	36.1	43.3	13.7	39.0	41.7	32.0	27.5	12.0	48.4	18.2	20.8	0.0	5.7

WRITING

	NON-MINNESOTA/PRE-SENIOR					NON-MINNESOTA/SENIOR					NON-MINNESOTA/POST-SENIOR				
	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White	Asian/ Pacific	Black	Hispanic	Native American	White
Number Attempted	7	5	4	4	758	0	4	1	1	510	24	46	16	12	2,561
Number Failed	6	2	3	1	124	0	2	0	0	87	12	18	3	5	149
Percent Failed	85.7	40.0	75.0	25.0	16.4	0.0	50.7	0.0	0.0	17.1	50.0	39.1	18.8	41.7	5.8

TABLE 38
Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing All First-Year/Fourth-Year Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	5,623	180.73	4.4332			*	*
Second Year	8,683	180.50	4.8859			*	*
Third Year	4,825	179.45	5.1565	*	*		*
Fourth Year	6,077	178.43	5.8513	*	*	*	
TOTALS	25,208	179.85	5.1745	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	5,541	181.26	5.8054		*	*	*
Second Year	8,440	180.81	6.2436	*			*
Third Year	4,661	180.57	6.7477	*			*
Fourth Year	5,690	179.58	7.1252	*	*	*	
TOTALS	24,332	180.58	6.4917	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	5,615	177.28	3.5413		*	*	*
Second Year	8,771	176.91	3.7802	*			*
Third Year	4,848	176.58	3.9759	*			*
Fourth Year	6,078	175.64	4.1274	*	*	*	
TOTALS	25,312	176.62	3.8997	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 39
Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing All First-Year/Fourth-Year Female Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	4,381	180.59	4.4140			*	*
Second Year	6,426	180.41	4.8403			*	*
Third Year	3,591	179.35	5.1449	*	*		*
Fourth Year	4,374	178.43	5.7490	*	*	*	
TOTALS	18,772	179.79	5.1013	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	4,311	180.65	5.7395		*	*	*
Second Year	6,271	180.05	6.2093	*			*
Third Year	3,477	179.87	6.6811	*			*
Fourth Year	4,121	178.84	7.0437	*	*	*	
TOTALS	18,180	179.89	6.4251	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	4,347	177.43	3.4569		*	*	*
Second Year	6,432	177.20	3.7290	*		*	*
Third Year	3,546	176.88	3.8383	*	*		*
Fourth Year	4,272	176.01	3.9916	*	*	*	
TOTALS	25,312	176.62	3.8997	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 40
Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing All First-Year/Fourth-Year Male Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	1,226	181.21	4.4741			*	*
Second Year	2,146	180.72	5.0032			*	*
Third Year	1,187	179.71	5.2899	*	*		*
Fourth Year	1,650	178.44	6.1079	*	*	*	
TOTALS	6,209	180.02	5.3835	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	1,214	183.45	5.4869			*	*
Second Year	2,064	183.12	5.7721				*
Third Year	1,137	182.74	6.4488	*			*
Fourth Year	1,521	181.62	6.9306	*	*	*	
TOTALS	5,936	182.73	6.2025	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	1,252	176.71	3.7679		*	*	*
Second Year	2,227	176.10	3.7544	*			*
Third Year	1,253	175.72	4.2135	*			*
Fourth Year	1,740	174.74	4.3236	*	*	*	
TOTALS	6,472	175.78	4.0647	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 41
Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing All First-Year/Fourth-Year Minnesota Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	5,055	180.66	4.4392		*	*	*
Second Year	7,280	180.33	4.8824	*		*	*
Third Year	3,772	179.17	5.1968	*	*		*
Fourth Year	4,840	178.16	5.7474	*	*	*	
TOTALS	20,947	179.70	5.1470	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	4,977	181.25	5.7898		*	*	*
Second Year	7,056	180.73	6.2664	*			*
Third Year	3,627	180.42	6.7875	*			*
Fourth Year	4,501	179.44	7.1128	*	*	*	
TOTALS	24,332	180.58	6.4917	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	5,046	177.23	3.5055		*	*	*
Second Year	7,353	176.77	3.7174	*		*	*
Third Year	3,780	176.30	3.9350	*	*		*
Fourth Year	4,843	175.37	4.0187	*	*	*	
TOTALS	25,312	176.62	3.8997	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 42
Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing All First-Year/Fourth-Year Non-Minnesota Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	395	181.46	4.3103			*	*
Second Year	1,233	181.55	4.6299			*	*
Third Year	983	180.53	4.8395	*	*		*
Fourth Year	1,118	179.66	5.9676	*	*	*	
TOTALS	3,729	180.70	5.1492	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	393	181.54	5.9426		*	*	*
Second Year	1,217	181.44	5.9695	*			
Third Year	968	181.23	6.5381	*			
Fourth Year	1,080	180.23	6.9995	*			
TOTALS	3,658	181.04	6.4559	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	398	177.74	3.7619		*	*	*
Second Year	1,246	177.78	3.9109	*			
Third Year	1,001	177.63	3.9607	*			
Fourth Year	1,125	176.75	4.2120	*			
TOTALS	3,770	177.43	4.0246	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 43

Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing First-Year/Fourth-Year Examinees by Educational Level

READING			
	FREQUENCY	MEAN	S.D.
Pre-Seniors			
First Year	2,188	179.9	*4.43
Fourth Year	3,055	177.9	5.54
Seniors			
First Year	3,292	180.6	4.23
Fourth Year	1,287	177.8	6.12
Post-Seniors			
First Year	1,031	182.8	4.24
Fourth Year	1,733	179.9	6.12
MATHEMATICS			
	FREQUENCY	MEAN	S.D.
Pre-Seniors			
First Year	2,171	180.6	5.76
Fourth Year	2,970	179.1	6.92
Seniors			
First Year	2,339	181.2	5.73
Fourth Year	1,099	179.3	7.36
Post-Seniors			
First Year	1,018	182.7	5.80
Fourth Year	1,616	180.7	7.19
WRITING			
	FREQUENCY	MEAN	S.D.
Pre-Seniors			
First Year	2,184	176.7	*3.37
Fourth Year	3,042	175.2	3.76
Seniors			
First Year	2,383	177.2	3.42
Fourth Year	1,305	174.9	4.10
Post-Seniors			
First Year	1,036	178.5	3.85
Fourth Year	1,725	177.0	4.42

*Significant difference at the 0.05 level.

TABLE 44
Frequency Distributions, Mean Scores, and Standard Deviations
on the Three PPST Skills Tests Comparing
All First-Year/Fourth-Year Minority Examinees

READING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	55	181.32	3.9018		*		*
Second Year	121	181.67	4.7159	*			
Third Year	45	180.16	4.8004				
Fourth Year	53	178.87	6.8164	*			
TOTALS	274	180.81	5.1512	*Significant difference			

MATHEMATICS

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	55	180.18	6.1527				
Second Year	117	181.33	6.2409				
Third Year	45	179.23	8.0131				
Fourth Year	52	178.67	8.1595				
TOTALS	269	180.23	6.9912	*Significant difference			

WRITING

YEAR	FREQUENCY	MEAN	S.D.	1st	2nd	3rd	4th
First Year	53	177.32	3.7456		*	*	*
Second Year	122	176.95	4.5976	*			
Third Year	44	176.57	4.4008	*			
Fourth Year	58	176.70	4.4401	*			
TOTALS	277	176.78	4.3797	*Significant difference			

*Significant difference at the 0.05 level.

TABLE 45

Frequency Distributions, Mean Scores, and Standard Deviations on the Three PPST Skills Tests Comparing First-Year and Fourth-Year Examinees by Racial/Ethnic Group

RACE/ ETHNIC GROUP	YEAR	READING			MATHEMATICS			WRITING		
		Frequency	Mean	S.D.	Frequency	Mean	S.D.	Frequency	Mean	S.D.
ASIAN/ PACIFIC	First Year	17	178.1	5.53*	17	178.2	6.73	20	175.4	3.75*
	Fourth Year	80	170.3	8.46	64	174.7	8.42	81	169.7	6.15
BLACK	First Year	11	176.5	7.74	10	175.9	9.58	10	175.3	5.77
	Fourth Year	65	174.0	7.28	63	172.1	7.20	69	172.5	4.49
HISPANIC	First Year	16	179.8	6.79*	14	178.7	6.12*	15	175.6	4.90
	Fourth Year	36	175.3	7.28	37	172.5	7.42		172.7	5.35
NATIVE AMERICAN	First Year	13	179.5	6.14*	13	177.7	8.26	13	176.8	4.49*
	Fourth Year	40	174.9	6.45	38	173.0	7.08	40	173.0	4.18
WHITE	First Year	5,499	180.7	4.41*	5,420	181.3	5.78*	5,491	177.3	3.53*
	Fourth Year	5,788	178.6	5.64	5,421	179.8	7.00	5,774	175.8	4.00
OTHER	First Year	12	182.0	4.61	12	182.6	4.74	13	178.5	3.38
	Fourth Year	15	181.6	4.01	15	181.1	7.40	16	175.4	3.38

*Significant difference at the 0.05 level.